Hyperactivity, Impulsivity and Inattention

Definition / Supporting Information

These features are often under clinical consideration in the context of determining if a child could have attention-deficit hyperactivity disorder (ADHD) or hyperkinetic disorder. This is the focus of this Key Practice Point (KPP).

Crucially however, ADHD needs to be distinguished from other disorders and behavioural difficulties and from children whose behaviour is within normal limits for their age. Often an element of clinical judgement and experience is required to determine whether reported and / or observed 'hyperactivity,' 'impulsivity' or 'inattention' is just age-appropriate behaviour.

Hyperactivity, impulsivity and inattention can be said to exceed the normal range when they result in significant psychological, social, educational or occupational difficulties that occur across multiple settings and domains and are persistent over time.

- See Attention deficit hyperactivity disorder: diagnosis and management [NICE clinical guideline CG72, section 1.3]

For a diagnosis of ADHD it is usual to consider the presence of these features in relation to The International Classification of Diseases, 10th Revision [ICD-10] or the Diagnostic and Statistical Manual of Mental Disorders, fifth edition (DSM-5)

- See The ICD-10 Classification of Mental and Behavioural Disorders [World Health Organization]

Keywords / also known as: ADHD, attention-deficit hyperactivity disorder, Hyperactivity, hyperkinetic disorder, inattention, impulsivity

Essential History

This will have to be tailored according to setting. However, it is crucial to remember that a comprehensive assessment is important to differentiate between conditions and to diagnose co-morbid conditions. This includes assessing development and mental health.

Ask about:

- Onset
  - The age the features were first noticed and by whom
- Duration
- Setting
  - Which setting? Who reports them? How much variation?

- Clinical features: Assess for presence, where they occur, and how much impairment they cause
- Features of hyperactivity / impulsivity:
  - Do they fidget or squirm when seated?
  - Inability to remain seated when needed to (eg, home vs. school)
  - Running about excessively when not situationally appropriate
  - Difficulty in engaging in activities quietly
  - Being on the go
  - Talking excessively or blurting out answers or responses before a question has been finished
  - Being unable wait for his or her turn, or butting into conversations
- Features of inattention:
  - Losing things necessary for daily activity
  - Difficulty organising tasks and activities
  - Not listening when spoken to
  - Avoiding activities requiring sustained mental effort
  - Forgetfulness in daily activities
  - Distraction by extraneous stimuli
  - Difficulty in following instructions and completing tasks
  - Difficulty in sustaining attention during activities
- Sleep pattern
  - Focus on routine and settling (see Disturbed Sleep)
- Other concerns at school
- Impairment in every-day situations:
  - Getting dressed
  - Having a meal with the family
  - Going shopping, going to the cinema or crossing the road
    - Accidents in different settings
- Symptoms or signs suggestive of other psychiatric disorders
  - Autism spectrum disorder (ASD) (see Social Communication Difficulty)
    - Deficits in social interaction and social communication
    - Restricted Interests and/or rigid and repetitive behaviours
  - Anxiety disorder
    - Excessive anxiety or worry about school or other situations
    - Recurrent or unexpected surges of fear with accompanying palpitations, sweating, trembling or dizziness
  - Separation anxiety: fear or anxiety which are specific to identifiable situations, environments or thoughts
  - Mood disorder
    - Low or sad mood

        - Loss of interest and / or pleasure in school or other activities
        - Suicidal thoughts and / or self-harm thoughts
        - Irritability
        - Withdrawal from friends and families
        - Hopelessness
        - Abnormal sleep
        - Weight gain or loss
        - Poor self-esteem
        - Loss of energy
        - Agitation
    - Schizophrenia spectrum disorders (typically in adults, can occur in young people < 18 years)
        - Delusions
        - Hallucinations
        - Disorganised speech and behaviour
        - Neurocognitive difficulties (eg, memory, attention)
        - Loss of motivation or changes in mood
    - Bipolar and related disorders
        - Evidence of manic or hypomanic episodes which are typified by: grandiosity, reduced sleep, pressured speech, racing thoughts, agitation or high-risk behaviour. In conjunction with this there may be a history of depressive episodes
        - These disorders are very rare in pre-pubertal children
- Oppositional defiant disorder
    - Losing temper and arguing with adults
    - Defying requests, blaming others, being easily angered or annoyed
    - Spiteful or vindictive behaviour
- Conduct disorder
    - Bullying or threatening behaviour
    - Getting into fights
    - Use of weapons
    - Cruelty to animals or people
    - Forced sexual activity
    - Truancy, running away from home, staying out at night despite prohibitions
    - Fire setting or other destruction of property
    - Theft, shoplifting or lying to obtain goods or valuables
- Learning difficulty or disability
    - Academic progress
    - Level / amount of additional support needed including the development of an Education, Health and Care Plan

  - Generalised or specific areas of support required
  - Presence of pre-existing conditions (eg, dyslexia)
- Past medical history
- Developmental history
  - Early development as a baby
  - Milestones (not just restricted to when they began to walk and talk)
  - Concerns in nursery or pre-school
  - Screening results for hearing and / or vision
- Family history
  - Is there a family history of any condition?
    - Particularly developmental disorders or learning disabilities [ADHD, autism]
    - Psychiatric disorders [anxiety disorders, mood disorders, schizophrenia spectrum disorders, bipolar and related disorders]
  - Always enquire about parental mental health; current or historical, severity; and gauge the effect on the family
- Social history
  - Enquire about family structure
  - Changes in the family situation [separation, births, bereavements, unemployment]
  - History of involvement with social services

See Attention deficit hyperactivity disorder: diagnosis and management [NICE clinical guideline 72]

‘Red Flag’ Symptoms and Signs

Ask about:

- Significant parental mental health issues
- Suicidal ideation in the child
- Loss of developmental skills or neurological regression
- Any features suggestive of neglect, abuse or non-accidental injury

See Attention deficit hyperactivity disorder: diagnosis and management [NICE clinical guideline CG72]

Look for:

- Symptoms and signs of non-accidental injury, neglect or abuse
  - See Attention deficit hyperactivity disorder: diagnosis and management [NICE clinical guideline CG72]
  - Features suggesting that the child / patient’s presentation poses a significant risk to other people or themselves

- Developmental regression or abnormal neurological signs or features of an underlying disorder whilst carrying out a full physical examination

Differential Diagnosis / Conditions

- No cause for concern
  - Developmental differences or normal variants
  - Sociocultural differences in expectations or parenting, or both
- Medical disorders
  - Medication side-effects
  - Substance abuse
  - Hearing impairment
  - Visual impairment
  - Obstructive sleep apnoea
  - Toxins (eg, chronic lead exposure or acute lead intoxication)
  - Chronic iron-deficiency anaemia
  - Thyroid disorders
  - Chronic disease complications
- Neurological or developmental disorders
  - ADHD
  - Intellectual disability
  - Autism spectrum disorders
  - Tic disorders (Tourette syndrome)
  - Speech and language delay or disorder
  - Neurodevelopmental syndromes (eg, Foetal Alcohol Spectrum Disorder)
  - Cerebral palsy
  - Seizure disorders
  - Sequelae of central nervous system trauma or infection
  - Neurodegenerative disorders
  - Developmental co-ordination disorder
  - Genetic / chromosomal disorders
- Psychosocial or environmental problems
  - Stress in family situation (eg, marriage, separation or divorce, birth of sibling, death)
    - Stress in environment (eg, new home, new school/ school difficulties)
    - Family dysfunction
    - Parenting dysfunction
    - Neglect, abuse, or both
    - Parental psychopathology
    - Parental substance abuse
- Emotional, behavioural or psychiatric disorders

  - Oppositional defiant disorder
  - Conduct disorder
  - Depressive disorders
  - Anxiety disorders
  - Bipolar disorder and related disorders
  - Obsessive-compulsive disorder
  - Post-traumatic stress disorder
  - Adjustment reaction
  - Schizophrenia spectrum disorders

Investigations

Should be guided by clinical expertise and based on the history and examination findings.

- Consider a period of watchful waiting

To be undertaken by non-specialist practitioners (eg, General Practitioner (GP) Team):

- Bloods tests
  - Consider whether these should be done in primary care [or following a referral to secondary care] on the basis of clinical suspicion
    - For example, where there is a suspicion of conditions such as iron deficiency, lead toxicity or thyroid disorder testing may be considered in primary care.
- Consider visual and / or audiology referral if a related issue is suspected

To be undertaken/arranged/requested by specialist practitioners (eg, Community Paediatric / Paediatric Neurodisability / General Paediatric / Neurology Team(s)):

- Blood tests
  - These should be guided by the history and examination
  - Brain imaging studies
    - Undertaken by a specialist if the history or examination suggests that there is an underlying neurological problem for which imaging is indicated
- Electroencephalogram (EEG)
  - Undertaken when there is clinical evidence already suggestive of epilepsy
- Consider visual and / or hearing referral if not already done or additional testing required
- Rating scales [for ADHD or other relevant disorders]
  - Useful to help gather information to aid in the diagnostic process
  - A comparison score between different settings [eg, home vs. school] can be very revealing

  - Relevant scales include Connors, SNAP-IV and Vanderbilt Rating scales for ADHD
- Observation
  - A school or home observation carried out by a healthcare professional can be useful in some situations
- Information on educational attainment and difficulties in addition to rating scales
  - School reports
  - Educational psychology reports

Treatment Approach

To be undertaken by non-specialist practitioners (e.g, General Practitioner (GP) Team), or specialist practitioners (eg, Paediatric / CAMHS/ General Paediatric Team(s)):

- Watchful waiting for up to 10 weeks
- Referral for educational programme, parent training, behavioural support and / or advice

To be undertaken by appropriate specialist practitioners (eg, Community Paediatric / Paediatric Neurodisability / General Paediatric / Neurology Team(s)):

- Underlying medical and / or neurological disorders:
  - These should be treated in accordance with treatment-specific guidance

ADHD:

- Treatment modalities
  - Behaviour support and / or psychological treatment
  - Pharmacological treatment
- Pre-school children with ADHD
  - Behavioural support for first-line treatment [eg, parent training, educational programmes, ADHD support group]
  - Drug treatment is not recommended
- School-aged children
  - Moderate ADHD
    - Behavioural support and related programmes initially
    - Medication if insufficient response or behavioural support refused
  - Severe ADHD
    - Medication and behavioural support and / or psychological treatment
- Treatment should be initiated by a practitioner with the appropriate training and experience
  - Refer to the Children's BNF when prescribing
- Discuss specific risks of medication with the patient and family
- Prior to initiation:

  - Complete full history and examination with height, weight, pulse, blood pressure, and cardiac examination
- Treatment options
  - Methylphenidate
  - Atomoxetine
  - Dexamfetamine / lisdexamfetamine
- Considerations when choosing medication:
  - Preferences of the family and child
  - Co-morbid features [eg, tics]
  - Potential side-effects
  - Potential for drug diversion
  - Individual specific considerations
  - Cost
- Commence medication at a low dose, increase if needed in a step-wise sequence and titrate according to response and side-effect profile [refer to the BNF for specific guidance]
- Medication review:
  - Soon after initiation (eg, 1 week after commencing medication)
    - A telephone review
  - 3-6 monthly intervals thereafter or sooner if clinically indicated [at least an annual review]
  - Review:
    - Effectiveness; presence or absence of side-effects
    - Determine whether any co-morbidities are developing
    - Monitor height, weight, blood pressure, and pulse
    - Consider whether medication should be continued at the same dose, increased or stopped according to response and the need for alternatives

See Attention deficit hyperactivity disorder: diagnosis and management [NICE clinical guideline CG72, section 1.5]

When to Refer

Refer to specialist practitioners (eg, Community Paediatric / CAMHS / Paediatric Neurodisability / General Paediatric / Neurology Team(s)) if:

- ADHD or a neurodisability is suspected
  - Referral choice dependent on suspected condition, age of the patient and local policy
    - For ADHD the behaviour should be having an adverse impact on development or family life

    - Consider a period of watchful waiting or a referral for a parent training / education programme first
- A medical condition is suspected. The referral should be directed to the appropriate team according to the suspected underlying abnormality

Referral to therapists:

- Speech therapy where a communication and /or speech impairment is suspected
- Physiotherapy or occupational therapy where further assessment for developmental co-ordination disorder or other related disorders would be useful

Refer to specialist practitioners (eg, Local Authority / Social Care Team(s)) where supportive structures around the child and family would be useful.

- Follow local safeguarding protocols

Refer to specialist practitioners (eg, CAMHS Team) for suspected emotional, behavioural or psychiatric disorders.

Refer urgently to specialist practitioners (eg, Paediatrics, Community Paediatric / CAMHS Team(s)) if:

- Significant concerns about safeguarding or the physical and / or emotional well-being of a child requiring urgent attention

Refer urgently to specialist practitioners (eg, Local Authority / Social Care Team(s)) for safeguarding concerns/suspected neglect / abuse.

- Follow local safeguarding protocols

‘Safety Netting’ Advice

- In primary or secondary care; parents should be asked to seek medical advice for any significant exacerbations in behaviour or new physical features
- In primary or secondary care when children are on treatment, any concern about adverse reactions relating to treatment or significant exacerbations should be brought to attention

Patient / Carer Information

Please note: whilst these resources have been developed to a high standard they may not be specific to children

- Attention deficit hyperactivity disorder (ADHD) (Webpage), the NHS website

Resources

National Clinical Guidance

Attention deficit hyperactivity disorder: diagnosis and management (Webpage), NICE clinical guideline CG72, National Institute for Health and Care Excellence

Medical Decision Support

Gada S. Community Paediatrics. Oxford Specialist Handbooks in Paediatrics. Oxford University Press, 2012.

Coghill D, Bonnar S, Duke SL et al. Child and Adolescent Psychiatry. Oxford Specialist Handbooks in Psychiatry, Oxford University Press, 2009.

Suggested Resources

Please note: these resources include links to external websites. These resources may not have national accreditation and therefore PCO UK cannot guarantee the accuracy of the content.

Methylphenidate for attention deficit hyperactivity disorder (ADHD) (Web page), Medicines for Children

The ICD-10 Classification of Mental and Behavioural Disorders [World Health Organization]

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